10 AI Prompts for Chemistry Teachers

Use Generative AI to Save Time, Engage Students & Simplify Complex Concepts

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How to Use This Guide

Each prompt below is designed to be copied directly into any generative AI tool — ChatGPT, Claude, Gemini, or similar. Simply paste the prompt, adjust the bracketed fields [like this] to match your topic, level, or context, and use the output as a starting point for your lesson, activity, or content. You are always the expert — AI is your assistant.

■ Always review AI outputs for scientific accuracy before using in class.

1. Explain a Complex Concept Simply

"Explain [topic, e.g., Le Chatelier's Principle] to a [grade level, e.g., first-year undergraduate] student using a real-life analogy. Keep the explanation under 150 words and avoid jargon."

✦ Use for: Lecture introductions, student handouts, or social media posts.

2. Generate a Lesson Plan

"Create a 45-minute lesson plan for teaching [topic, e.g., types of chemical reactions] to [age group, e.g., Grade 10 students]. Include learning objectives, a warm-up activity, main explanation, class activity, and a 3-question exit quiz."

✦ Use for: Lesson planning, curriculum development, substitute teacher guides.

3. Design a Lab Safety Quiz

"Write a 10-question multiple-choice quiz on laboratory safety for [level, e.g., secondary school students]. Include 4 answer choices per question and provide an answer key at the end."

✦ Use for: Lab inductions, safety assessments, beginning-of-term checks.

4. Create a Real-World Application Example

"Give me 3 real-world examples of how [topic, e.g., acids and bases] are used in everyday life or industry. For each example, write a 2-sentence explanation suitable for a [level] student."

✦ Use for: Motivating students, connecting theory to practice, SciComm content.

5. Simplify a Textbook Paragraph

"Rewrite the following textbook paragraph in simpler language for a [level] student, without losing the scientific accuracy: [paste paragraph here]"

✦ Use for: Differentiated instruction, English as second language learners, revision notes.

6. Generate Discussion Questions

> "Write 5 open-ended discussion questions about [topic, e.g., green chemistry and sustainability] for a [level] chemistry class. Questions should encourage critical thinking and real-world connections."

✦ Use for: Classroom discussions, seminars, online forum prompts.

7. Write a Science Communication Post

> "Write a 150-word social media post explaining [chemistry concept] for a general audience. Use simple language, one relatable analogy, and end with a thought-provoking question."

✦ Use for: Department social media, science outreach, student SciComm projects.

8. Create a Worked Example

> "Provide a step-by-step worked example of [problem type, e.g., calculating pH of a buffer solution] with all steps clearly explained and units shown throughout."

✦ Use for: Problem sheets, tutorial preparation, online resources.

9. Design a Formative Assessment

> "Create a 5-question short-answer formative assessment on [topic] for [level] students. Include a marking guide with expected key points for each answer."

✦ Use for: Mid-lesson checks, homework assignments, flipped classroom activities.

10. Generate a Lab Report Template

> "Create a structured lab report template for a [level] chemistry practical on [experiment type, e.g., acid-base titration]. Include sections for aim, hypothesis, materials, method, results table, discussion questions, and conclusion."

✦ Use for: Practical classes, remote learning labs, assessment templates.

■ Want 50 more prompts with subject-specific variations? Visit infochemist.com/resources for the complete AI Chemistry Educator's Toolkit — coming soon.

